Claims

[c1] 1. A method of combining a channel quality estimate for a radio channel based on a direct measurement of carrier and interferer energies, and a channel quality estimate for the radio channel based on channel decoder metrics, to obtain a better overall estimate of the carrier-to-interference (C/I) ratio measure of the channel quality for the radio channel, said method comprising:
obtaining a direct channel quality estimate based on carrier and interferer energies;
obtaining a channel decoder metric based channel quality estimate;
computing a confidence level, P(direct), for the direct channel quality estimate, and a confidence level, P(metric), for the decoder metric channel quality estimate wherein,
$0 \leq P(direct) \leq 1$, $0 \leq P(metric) \leq 1$, and $P(direct) + P(metric) = 1$;
multiplying P(direct) by the direct channel quality estimate and P(metric) by the decoder metric channel quality estimate; and
adding the respective products to obtain a final channel quality estimate in terms of the carrier-to-interference (C/I) ratio for the radio channel.

[c2] 2. The method of claim 1 further comprising:
storing the previous N direct channel quality estimates; and
storing the previous N decoder metric-based channel quality estimates.

[c3] 3. The method of claim 2 wherein P(direct) is a function of the standard deviation σ_{direct} of the previous N direct channel quality estimates, and the standard deviation σ_{metric} of the previous N decoder metric-based channel quality estimates, wherein P(direct) is equal to $\sigma_{metric} / (\sigma_{direct} + \sigma_{metric})$.

[c4] 4. The method of claim 2 wherein P(metric) is a function of the standard deviation σ_{direct} of the previous N direct channel quality estimates, and the standard deviation σ_{metric} of the previous N decoder metric-based channel quality estimates, wherein P(metric) is equal to $\sigma_{direct} / (\sigma_{direct} + \sigma_{metric})$.

[c5] 5. The method of claim 1 wherein P(direct) is set to 0 when C/I(direct) is significantly greater than C/I (metric).

[c6] 6. The method of claim 1 wherein P(metric) is set to 0 when both C/I(metric) and C/I(direct) are greater than a first threshold.

[c7] 7. The method of claim 1 wherein the final channel quality estimate is used for adaptive multi-rate (AMR) codec mode adaptation.

[c8] 8. A system for combining a channel quality estimate for a radio channel based on a direct measurement of carrier and interferer energies, and a channel quality estimate for the radio channel based on channel decoder metrics, to obtain a better overall estimate of the carrier-to-interference (C/I) ratio measure of the channel quality for the radio channel, said system comprising:
means for obtaining a direct channel quality estimate based on carrier and interferer energies;
means for obtaining a channel decoder metric based channel quality estimate;
means for computing a confidence level, P(direct), for the direct channel quality estimate, and a confidence level, P(metric), for the decoder metric channel quality estimate wherein,
$0 \leq P(direct) \leq 1$, $0 \leq P(metric) \leq 1$, and $P(direct) + P(metric) = 1$;
means for multiplying P(direct) by the direct channel quality estimate and P (metric) by the decoder metric channel quality estimate; and
means for adding the respective products to obtain a final channel quality estimate in terms of the carrier-to-interference (C/I) ratio for the radio channel.

[c9] 9. The system of claim 8 further comprising:
means for storing the previous N direct channel quality estimates; and
means for storing the previous N decoder metric-based channel quality estimates.

[c10] 10. The system of claim 9 further comprising means for computing P(direct) as a function of the standard deviation σ_{direct} of the previous N direct channel quality estimates, and the standard deviation σ_{metric} of the previous N decoder metric-based channel quality estimates, wherein P(direct) is equal to $\sigma_{metric} / (\sigma_{direct} + \sigma_{metric})$.

[c11] 11. The system of claim 9 further comprising means for computing P(direct) as

a function of the standard deviation σ_{direct} of the previous N direct channel quality estimates, and the standard deviation σ_{metric} of the previous N decoder metric-based channel quality estimates, wherein P(metric) is equal to $\sigma_{direct} / (\sigma_{direct} + \sigma_{metric})$.

[c12] 12. The system of claim 8 further comprising means for setting P(direct) to 0 when C/I(direct) is significantly greater than C/I (metric).

[c13] 13. The system of claim 8 further comprising means for setting P(metric) to 0 when both C/I(metric) and C/I(direct) are greater than a first threshold.

[c14] 14. The system of claim 8 wherein the final channel quality estimate is used for adaptive multi-rate (AMR) codec mode adaptation.